

99-D-127, Stockpile Management Restructuring Initiative

Kansas City Plant, Kansas City, Missouri

(Changes from FY 2000 Congressional Budget Request are denoted with a vertical line [|] in the left margin.)

Significant Changes

- # The congressionally mandated external assessment found that the Other Projects Costs may have been understated and recommended that these costs be reestimated. The reestimate increased the Total Project Cost by \$1,900,000 to \$141,600,000. The reestimate also revealed that \$2,900,000 of Total Estimated Cost work had been included under the Other Project Cost category. The change to the Total Estimated Cost reflects the corrected categorization of this work.

1. Construction Schedule History

| | Fiscal Quarter | | | | Total Estimated Cost (\$000) | Total Project Cost (\$000) |
|---|--------------------|----------------------|-----------------------------|--------------------------------|------------------------------|----------------------------|
| | A-E Work Initiated | A-E Work Completed | Physical Construction Start | Physical Construction Complete | | |
| FY 1999 Budget Request (<i>Preliminary Estimate</i>) | 1Q 1999 | 2Q 2004 ^a | 3Q 1999 | 3Q 2006 | 122,500 | 139,500 |
| FY 2000 Budget Request | 2Q 1999 | 3Q 2004 | 3Q 1999 | 2Q 2005 | 119,500 | 139,700 |
| FY 2001 Budget Request (<i>Current Baseline Estimate</i>) | 2Q 1999 | 3Q 2004 | 3Q 1999 | 2Q 2005 | 122,400 | 141,600 |

2. Financial Schedule

(dollars in thousands)

| Fiscal Year | Appropriations | Obligations | Costs |
|-------------|---------------------|-------------|--------|
| 1999 | 13,700 | 13,700 | 153 |
| 2000 | 16,935 ^b | 16,935 | 24,156 |
| 2001 | 23,765 | 23,765 | 19,600 |
| 2002 | 27,200 | 27,200 | 25,689 |
| 2003 | 24,900 | 24,900 | 30,317 |
| 2004 | 15,100 | 15,100 | 20,662 |
| 2005 | 800 | 800 | 1,823 |

^a The work packages will be phased as required to maintain production operations. Title I design, Title II design and construction of work packages occur simultaneously after 3rd Qtr. FY 1999.

^b Original appropriation was \$17,000,000. This was reduced by \$65,000 for the FY 2000 rescission enacted by P.L. 106-113.

3. Project Description, Justification and Scope

The end of the Cold War radically changed the defense posture of the United States, calling for significant changes and reductions in nuclear weapons complex structure and operations. The initial phase of this retrenchment began when the Department of Energy decided to cease nonnuclear production at three plants and consolidate most of its nonnuclear manufacturing at the Kansas City Plant (KCP). However, even with the influx of new missions, the downturn in defense production meant continued reductions in operating costs and work force.

The Stockpile Management Restructuring Initiative provides a cost-effective plan that capitalizes on the KCP's logistic and manufacturing expertise to ensure quality nonnuclear products through the year 2010 and beyond. Furthermore, the initiative minimizes DOE costs in the near term by lessening risks and reducing operating expenditures concurrent with capital investments. It also provides the technical capability, production capacity, and flexibility necessary to allow the KCP to support scheduled nonnuclear production and a wide range of unanticipated production requirements, confidently and effectively.

The Stockpile Management Restructuring Initiative will allow the KCP's infrastructure to be altered and greatly reduced from the current plant profile, substantially reducing costs to operate the KCP. The restructuring initiative consists of changing the existing plant and operational approach in four major aspects: 1) physically reducing the size of the facility, 2) changing the approach to manufacturing from product-based to process-based, 3) reducing the support infrastructure appropriate for the right-sized operation, and 4) further streamlining the organizational structure to focus directly on the core manufacturing mission.

Currently, the KCP consists of approximately 3.2 million square feet of floor space contained in three connected buildings: the main building, the manufacturing support building (MSB) and the technology transfer center (TTC). Approximately 3 million square feet of floor space is core stockpile management funded. Much of the floor space is underutilized and costly to maintain and approximately 666,000 square feet of vacant floor space will be returned to GSA for reallocation to other Federal agencies. The KCP will be rearranged into three business units and a support operations business unit to bring about an overall reduction in total managed floor space, streamline operations, and produce increased long-term operating efficiencies in manufacturing processes. The approximate square footage of each business unit after consolidation is as follows:

| | <u>Square Ft.</u> |
|------------------------------------|-------------------|
| Electrical Products Business Unit | 236,000 |
| Mechanical Business Unit | 350,000 |
| Engineered Materials Business Unit | 198,000 |
| Support Operations Business Unit | 850,000 |
| Vacant, Unallocated and Unusable | <u>666,000</u> |
| Total | 2,300,000 |

Electronics Products Business Unit (EPBU) Technology Overview

The electronics products factory includes three process modules: microelectronics, interconnects, and final assembly. Each electronic process module will fabricate all product lines that require the processes of that module. In addition to the three process modules, there will be three manufacturing areas for specialized products: Joint Test Assembly (JTA), Special Electronic Assembly (SEA), and Test Equipment.

The three process modules are:

Microelectronics: All substrates, hybrid microcircuits, chip packages, and leadless chip carriers that require clean room processing are fabricated in the state-of-the-art microelectronics module. The module is located in the new microelectronics facility which was completed in June 1995 and will become fully operational in September 1998.

Interconnects: The interconnects module contains all the processes used to attach and interconnect components. This includes processes such as welding, conventional hand soldering, wave soldering, vapor phase soldering, and belt furnace re-flow soldering. In addition to printed wiring assemblies, interconnect products, such as cables and junction boxes, can be fabricated in this module.

Final Assembly: The fabrication of complete electronic systems is performed in the final assembly module. This consists of the assembly and encapsulation of all components required for complete electronic products. Procured components, printed wiring assemblies, and manufactured hardware are assembled to produce complete electronic systems such as radars, programmers, trajectory sensing, and firesets.

Mechanical Business Unit (MBU) Technology Overview

The MBU will consist of 14 modules which will fabricate or procure all required product lines. This is a process-based approach for most mechanical technologies, complemented by generic product-based manufacturing departments, mechanical support laboratories, and engineering services as follows:

Mechanical Welding: Mechanical Welding is a process-based activity group providing welded mechanical hardware and welding operations in common support of factory operations. The in-place consolidation will combine operations which currently exist in Welding Operations, Interim Reservoir Welding, Model Shop and Tool Room, and the Mechanical Welding Laboratory.

Sheet Metal and Mechanical Assembly: The sheet metal fabrication assembly area will provide common support for a range of mechanical and electromechanical products, and includes typical sheet metal processes as well as laser marking.

Electromechanical Assembly: Electromechanical Assembly will be restructured in a downsized and consolidated operation to provide support of stronglinks and other miniature assemblies which have design features that include miniature solenoids, ceramic electrical headers, miniature springs, friction reducing coatings and bearings, low resistance electrical contacts, magnetically coupled switching, and a host of other unique designs. Most miniature mechanisms require assembly in a Class 100 clean environment, utilizing clean benches within a class 100,000 clean room.

Heat Treating and Abrasive Blasting: The heat treat and abrasive blasting areas provide service for all mechanical product lines. Included in the relocation of the Heat Treat department is the replacement of a portion of the furnaces and support equipment which will not survive the relocation due to their poor condition. The structural integrity of the furnaces being replaced is very poor and modifications would be required to refurbish fire brick and heating elements and the equipment may not survive the relocation. Due to the large size of these furnaces and the criticality of this equipment as a unique capability, new furnaces will be procured and installed in the new location prior to excess of the old equipment.

Mechanical Machining: Mechanical machining and inspection will be a downsized and consolidated operation that will fabricate hardware through traditional and non-traditional means in sizes ranging from large case-type housings to miniature piece parts for assemblies. The machined hardware provided by this module will support requirements of all programs at KCP for both internal and external customers.

Reservoir Fabrication and Assembly: Reservoir production responsibility was transferred from the DOE's Rocky Flats Plant to the KCP through the nonnuclear reconfiguration program. Because of special handling, cleaning and contamination considerations associated with reservoir production, KCP's reservoir facility contains most processes necessary to manufacture, test and inspect a wide variety of production reservoirs. SMRI implementation will not change the Reservoir facility.

TSD Products Manufacturing: TSD Products Manufacturing supports the secure transportation needs for the DOE Transportation Safeguards Division including refurbishment of existing trailers, original manufacture of the new design Safeguards Transporter Trailer (SGT) and multiple short-term special maintenance activities. The TSD manufacturing area will be consolidated by combining the secure trailer sheet metal area with the primary SGT assembly facility.

Mechanical Support Laboratories: Support laboratories for Mechanical Operations will continue to provide the current types of support, though in a smaller footprint through consolidation.

Plastics Molding & Filled Elastomers: This area supports injection, compression, and transfer molding of thermoset and thermoplastic compounds, and material preparation and compression molding of filled elastomeric products.

Cellular Silicone Production: The Cellular Silicone processing operations will not be consolidated with other operations for material incompatibility reasons. The activities associated with the production of cellular silicone products require three major processes: urea screening; silicone base and cellular silicone compounding; and cellular silicone molding, part processing, and product inspection.

Foam Products: Foam Products is a process-based approach, which has combined equipment needed for fabrication of rigid polyurethane foams, filled elastomer foams and foam desiccant product lines.

Plastics Machining, Assembly & Inspection: In the Plastics Machining, Assembly & Inspection module, the manufacturing and machining of all Special Plastics Case Assemblies and Subassemblies, Gas Getters, Composites, and all other plastic products and the related inspection of these products will be consolidated. This consolidation allows for some enhanced utilization of floor space and equipment.

Plating & Painting: These two process modules provide custom metal finishing services to the entire plant. They are not undergoing consolidation as part of the SMRI project.

Engineered Materials Business Unit (EMBU) Technology Overview

The engineered materials factory consists of four processing modules as follows:

Model Shop and Tool Room: The Model Shop and Tool Room is a support organization that will provide prototype and evaluation hardware, tool and gage fabrication and maintenance, special grinding of cutting tools, and limited tool design in support of unique and short-cycle time needs of production operations.

Engineering Laboratories: The Engineered Materials Business Unit contains several large laboratories. Except for the Nuclear Grade Steels Receiving and Inspection, and Environmental & Non-Destructive test labs, the Engineering Laboratories will remain unchanged by the SMRI project.

Engineering Services: The Engineered Materials Business Unit provides document control, drafting, and other support services for the other business units. These functions are primarily office areas, and are not modified in the SMRI project.

Metrology: Metrology provides calibration services to the plant and will not be modified under SMRI.

Support Operations Technology Overview

Support operations includes boilerhouses, waste management operations, patrol headquarters, stores (including enduring stockpile), maintenance, cafeteria, offices and other functions that are essential for plant operations. Included under this function is the physical plant separation work for walls and utilities and security guard support during construction. Also included is the construction and relocation of a downsized cafeteria. These functions, generally placed in the category of support, are common to plant operations and are not assigned to a specific factory.

Physical Plant Separation: Maximum Foreseeable Fire Loss (MFL) rated separation between the DOE and GSA will be provided by construction of fire rated subdivision walls. Major air handling and utilities systems serving both DOE and GSA will be separated to allow for independent maintenance of these services on both sides of the separation line after the SMRI project is complete.

Stores: New stores will occupy approximately 21 areas, down from the existing 70. Gages and fixtures, chemicals, and some of the production and non-production stores areas will remain in their current locations. Bulk materials and large production and non-production areas will be relocated and resized to meet future stores requirements. This bulk storage area will be located in a high-roof, unexcavated area of the plant which is adjacent to a new high-rack storage area.

Enduring Stockpile: This project provides space for enduring stockpile inventory and to construct fire-rated storage facility enclosures to limit the Maximum Foreseeable Loss (MFL) in accordance with DOE dollar limits. Sites will be provided for a proposed short-term storage of DOE-managed Enduring Stockpile materials. Approximately 105,000 square feet of plant floor space within the new boundaries derived from the facility consolidations will be allocated for the storage of these materials. Thirteen plant areas will be dedicated to this purpose and will be upgraded in place to meet the enduring stockpile storage criteria.

Project Milestones:

| | |
|--|----|
| FY 1999: A-E Work Initiated | 2Q |
| Physical Construction Starts | 3Q |
| FY 2000: A-E Work Completed | 3Q |
| FY 2005: Physical Construction Completed | 2Q |

4. Details of Cost Estimate

| (dollars in thousands) | | |
|--|------------------|-------------------|
| | Current Estimate | Previous Estimate |
| Design Phase | | |
| Preliminary and Final Design costs (Design Drawings and Specifications) | 8,451 | 8,451 |
| Design Management Costs (1.0% of TEC) | 1,268 | 1,268 |
| Project Management Costs (0.3% of TEC) | 422 | 422 |
| Total, Design Costs (8.3% of TEC) | 10,141 | 10,141 |
| Construction Phase | | |
| Buildings | 46,381 | 46,381 |
| Standard Equipment | 32,210 | 32,210 |
| Inspection, Design and Project Liaison, Testing, Checkout and Acceptance | 3,440 | 3,440 |
| Construction Management (5.3% of TEC) | 6,477 | 6,477 |
| Project Management (4.7% of TEC) | 5,750 | 2,850 |
| Total, Construction Costs (77.0% of TEC) | 94,258 | 91,358 |
| Contingencies | | |
| Design Phase (1.5% of TEC) | 1,799 | 1,799 |
| Construction Phase (13.2% of TEC) | 16,202 | 16,202 |
| Total, Contingencies (14.7% of TEC) | 18,001 | 18,001 |
| Total, Line Item Costs (TEC) ^a | 122,400 | 119,500 |

5. Method of Performance

Design and inspection will be performed under KCP negotiated architect-engineer contract. Construction will be accomplished either by fixed-price contract awarded after competitive proposals or by cost plus incentive fee contracts. All contracts will be administered by Allied Signal.

^a The Conceptual Design Report was completed in March 1997. Escalation is calculated to the midpoint of each activity. Escalation rates were taken from the FY 1998 DOE escalation multiplier tables. Overhead estimates were calculated at a factor of 14 percent for procurement and 85 percent for internal labor.

6. Schedule of Project Funding

(dollars in thousands)

| | Prior Years | FY 1999 | FY 2000 | FY 2001 | Outyears | Total |
|---|-------------|---------|---------|---------|----------|---------|
| Project Cost | | | | | | |
| Facility Cost | | | | | | |
| Design | 0 | 153 | 5,856 | 3,000 | 2,931 | 11,940 |
| Construction | 0 | 0 | 18,300 | 16,600 | 75,560 | 110,460 |
| Total, Line item TEC | 0 | 153 | 24,156 | 19,500 | 78,491 | 122,400 |
| Total, Facility Costs (Federal and Non-Federal) | 0 | 153 | 24,156 | 19,600 | 78,491 | 122,400 |
| Other Project Costs | | | | | | |
| Conceptual design cost | 1,000 | 0 | 0 | 0 | 0 | 1,000 |
| Other project-related costs | 3,093 | 3,485 | 3,849 | 3,230 | 4,543 | 18,200 |
| Total, Other Project Costs | 4,093 | 3,485 | 3,849 | 3,230 | 4,543 | 19,200 |
| Total, Project Cost (TPC) | 4,093 | 3,638 | 28,005 | 22,830 | 83,034 | 141,600 |

7. Related Annual Funding Requirements

(FY 2005 dollars in thousands)

| | Current Estimate | Previous Estimate |
|---|------------------|-------------------|
| Annual facility operating costs ^a | 3,700 | 3,700 |
| Annual facility maintenance/repair costs | 5,400 | 5,400 |
| Programmatic operating expenses directly related to the facility | 9,374 | 9,374 |
| Total related annual funding (operating from FY 2005 through FY 2034) | 18,474 | 18,474 |

^a Estimated life of project—30 years.